

# ELR

## NEWS & ANALYSIS

## Western Growth and Sustainable Water Use: If There Are No “Natural Limits,” Should We Worry About Water Supplies?

by A. Dan Tarlock and Sarah Bates

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*Editors' Summary: Prof. Dan Tarlock and Sarah Bates suggest that water scarcity is unlikely to curtail population growth in the American West, but that urban areas should still take into account water supplies as they plan for their futures. Thomas Graff and Jennifer Pitt agree that water availability is unlikely to inhibit growth in the West, but discuss the importance of ensuring that the right mix of forward thinking officials, an educated public, and a transparent decisionmaking process regarding water allocation are used to manage water resources. Benjamin Grumbles believes that smart growth policies coupled with reducing water waste and inefficiency, reusing water, and restoring watersheds can help ensure water security. David Hayes believes that the devolution and disaggregation of institutional control over water resources along with the reality of climate change may cause water supply and growth to be more closely connected than Professor Tarlock and Ms. Bates believe.*

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### I. Introduction

The West's population is growing at the same time that water supplies face continued and new stresses. Western states benefit both from the continued population shift toward the sunshine and mountains and from immigrants who fuel the country's absolute population growth. Contrary to any concerns about limited water supplies, people want to live in the West. It is beautiful; large parts of it enjoy mild or bearable winters; it offers a full range of lifestyle and outdoor recreation choices; and settlement is much less constrained than it was when the West was an eastern and European colony. The modern service economy, combined with extensive, federally subsidized highway, air route, and electronic infrastructures, facilitate a greater range of location choices for individuals and business than did the old cowboy-commodity production economy, which remains politically powerful but economically less important. Air conditioning has made year-round desert living feasible for many who otherwise would not bear the discomfort of the Southwest's summers.

What are the consequences of this surging human tide? Urban growth impacts four water-related commons, both in the areas that are growing and in areas where the water sup-

ply originates: (1) available surface and groundwater reserves; (2) community amenity levels; (3) the cultural commons represented by small ranch, farm, or raw commodity production communities<sup>1</sup>; and (4) water dedicated to aquatic ecosystem function support or recovery.<sup>2</sup>

More and more, cities are questioning what kind of physical and cultural landscape they want. Water provides a leverage point to facilitate more intelligent choices about urban form and the society that it produces than have been made in the past. Some communities, not always confined to the arid West, do face supply constraints and must factor these into their growth policies. In other areas, continued urban growth may come at the expense of environmental restoration and the preservation of remnant areas of irrigated agriculture. Cities may wish or be forced to integrate their water demands with those of other users. Population booms also threaten to destroy the land and water base of many small communities and landscapes with underappreciated ecosystem services and values.

This Article examines the barriers that water, public utility, and land use law pose to using water availability as a strategy to limit population growth. The water-land use linkage programs currently emerging in the region are also explored. The current growth management debate continues to accept growth as inevitable and seeks only to accom-

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A. Dan Tarlock is a Distinguished Professor of Law and Director of the Environmental and Energy Law program at Chicago-Kent College of Law, Illinois Institute of Technology. Sarah Bates is a Senior Fellow at the Public Policy Research Institute at the University of Montana and Deputy Director for Policy and Outreach, Western Progress ([www.westernprogress.org](http://www.westernprogress.org)), Missoula, Montana. A version of this article was originally published at 27 PUB. LAND & RESOURCES L. REV. 33 (2006), and is reprinted with permission.

1. See Gary Nabhan, *Heat's on Agriculture*, HEADWATERS NEWS, May 26, 2004, <http://www.headwatersnews.org/p.nabhan052604.html>.

2. See Barton H. Thompson, *Water Management and Land Use Planning: Is It Time for Closer Coordination?*, in WET GROWTH: SHOULD WATER LAW CONTROL LAND USE? 95, 100-02 (Craig Anthony Arnold ed., 2005).

moderate it through conservation, reallocation of agricultural supplies, and possibly denser urban development. Nonetheless, the exit of the federal government from subsidizing regional development, along with state inaction, is forcing urban areas to begin linking land use and water resources planning for the first time. Western cities may not stop growing, but growth accommodation will be more difficult and more expensive than it has been in the past.

Increasingly, some form of water supply planning will be necessary before growth can continue. For example, in early 2008, a water district determined that it could not guarantee a water supply for two new (and large) commercial and retail developments in Riverside County, California.<sup>3</sup> Water will be more costly, and the trade offs between growth and its alternatives will become more intense and obvious. The new reality of global climate change adds an additional wild card to the mix, further complicating the competition for the West's variable supplies by increasing the inherent risks in water rights and hydrologic forecasts. We are still a long way from achieving sustainable human settlement in the American West.

## II. Barriers to Linkage: Water and Land Use Policies Fuel Unlimited Growth

In light of the changing demographic, political, and physical realities of the region, western states and local governments can scarcely avoid taking a more coordinated approach to water and land use planning. Historically, however, water and land use planners have worked at different levels of government (water managers reporting to state agencies; land use planning revolving around local government authorities) with little reason to talk to one another.<sup>4</sup>

Today, land use planners are increasingly interested in water supply issues as communities face real or perceived shortages. The American Planning Association's 2006 conference notably included a separate track focusing land and water issues. For their part, water managers are beginning to show an interest in delving into local planning issues, as exemplified by the focus on water policies and planning at the 2007 Western States Water Council conference, co-sponsored with the Western Governors' Association.<sup>5</sup>

States have four options to link water and land use policies: (1) capping growth; (2) continuing unlimited growth accommodation; (3) shifting the burden of supply acquisition to local governments and developers; and (4) constraining growth to match available and projected supplies. Legal barriers that complicate states' decisions to choose among these strategies are discussed next, followed by a section which examines linkage programs that western states and cities are beginning to adopt.

### A. Water Law: The Municipal Super-Preference

Water law has consistently supported unrestrained, sprawling urban growth. Water law has served as one of the drivers of suburbanization because all doctrines—the common law of riparian rights, prior appropriation, and the law of groundwater capture—contain a super-preference for accommodating growth.<sup>6</sup> This is not a condemnation of urban growth or water law generally. The dedication of water to urban use is consistent with the long-established scheme of preferences for utilitarian applications of water, and is economically rational. Our point is simply that in major water fights, cities almost always win. We concentrate on western water law, but the common law of riparian rights equally supports urban growth.<sup>7</sup>

Prior appropriation, the general principle that water rights are unconnected to land ownership and can be bought or sold like other property, promoted the West as a democratic, irrigated society. The dominant rule of water allocation in the West also turns out to be an ideal law for urban expansion because it is a use-based rather than land-based system of property rights.<sup>8</sup> Detaching water from land allows the entire flow of a stream to be diverted far from the watershed of origin to serve growing cities, as demonstrated in California and Colorado. Cities have thrived under prior appropriation, although in any given situation the doctrine can be invoked by agricultural water right holders with senior rights, and a municipality may bear the cost.

Cities enjoy an exemption from the anti-speculation principle that water rights cannot be held for speculative purposes. Under the "growing cities" doctrine, cities are allowed to perfect a water right to the amount of water that they will need in advance of demand.<sup>9</sup> There are few exceptions. The Washington Supreme Court limited the reach of this doctrine by holding that actual application to beneficial use rather than capacity of a private municipal water system is the measure of the water right,<sup>10</sup> but the legislature promptly reversed the heresy that beneficial use could be a limit on urban growth.<sup>11</sup> Perhaps the most important exception is the Colorado Supreme Court's recent decision that applied the state's anti-speculation and "can and will" doctrines (developed to police conditional decrees) much more

3. Jennifer Bowles & Dan Lee, *Water Troubles Put Inland Developments in Limbo*, RIVERSIDE PRESS ENTERPRISE, Jan. 24, 2008.

4. The historic disconnect between water and land use planning is explored in A. Dan Tarlock & Lora A. Lucero, *Connecting Land, Water, and Growth*, 34 URB. LAW. 971 (2002), and Lora A. Lucero & A. Dan Tarlock, *Water Supply and Urban Growth in New Mexico: Same Old, Same Old, or a New Era?*, 43 NAT. RESOURCES J. 803 (2003).

5. WESTERN GOVERNORS' ASSOCIATION, WATER POLICIES AND PLANNING IN THE WEST: ENSURING A SUSTAINABLE FUTURE: A CONFERENCE 1 (2007), available at <http://www.westgov.org/wga/initiatives/water07.pdf>.

6. See A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163 (1999).

7. Space constraints prevent a full discussion of the many ways in which water law operates to encourage growth. For a more detailed treatment of the subject, see the original article from which this piece was adapted: A. Dan Tarlock & Sarah B. Van de Wetering, *Western Growth and Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies?*, 27 PUB. LAND & RESOURCES L. REV. 33 (2006).

8. For an example of the impact of the potentially adverse impact of priority enforcement on urban areas, see *City of Barstow v. Mojave Water Agency*, 5 P.3d 853, 31 ELR 20023 (Cal. 2000).

9. See Thornton v. Bijou Irrigation Co., 926 P.2d 1, 29-30 (Colo. 1996); Reynolds v. City of Roswell, 654 P.2d 537, 540 (N.M. 1982).

10. State Dep't of Ecology v. Theodoratus, 957 P.2d 1241, 1245 (Wash. 1998).

11. WASH. REV. CODE §90.03.330(3) (2003). The law has been challenged as a violation of separation of powers. See Jeff B. Kray, *Municipal Water Law: Washington's Landmark Law Faces Challenges*, WATER REP., Oct. 2007, at 1. However, the state now requires that municipal suppliers develop plans with new conservation standards and take actions that are consistent with local land use plans in its service area. WASH. REV. CODE §90.03.386.

strictly to municipal appropriations than had been the case in the past.<sup>12</sup>

Groundwater law is even more favorable to cities because it imposes fewer legal restraints on water use than the laws governing surface waters. In many parts of the country, accelerating groundwater pumping by municipal suppliers and unregulated private wells is causing water tables to drop and land to subside.<sup>13</sup> Courts have refused to recognize or protect a right to lift groundwater,<sup>14</sup> and neither judicial decisions nor state statutes do a good job of integrating surface and groundwater rights.<sup>15</sup> Cities have benefitted from this lack of coordination.

### *B. Land Use Law: Growth Management Equals Growth Accommodation*

The rate and degree to which cities must accommodate growth has long been a divisive land use issue. Growth management first emerged as a discrete local land use objective in the late 1960s as post-World War II suburbs expanded into farming areas near urban areas. Since the 1960s, some local governments—generally smaller, affluent suburbs—began to question whether they had to accommodate *all* growth, and growth control and management emerged on the agenda.

As generally practiced today, growth management is little more than a sophisticated unlimited growth accommodation strategy. Cities generally accept growth levels as a given and seek to accommodate them by channeling development within urban growth boundaries and by using subdivision exactions to force new residents to pay for the costs of new public services directly. The law of growth management

supports the long history of market preference: Americans have a persistent preference for low-density development.<sup>16</sup>

Urban sprawl has immediate water supply consequences in areas that depend on groundwater. A recent report by American Rivers and other water and environmental non-governmental organizations documents how urban sprawl reduces aquifer recharge by paving over recharge areas.<sup>17</sup> In addition, the regional impacts of individual municipal growth management decisions are often ignored. Growth controls tend to produce more European-style cores, with many amenities and more massed, usable open space, but they do so only by pushing low-density growth far into adjacent areas. If water is used as a growth control lever, the tension between growth control and affordable housing will be exacerbated. Lawyers and planners who must work with California's new water supply planning and certification requirement, described below,<sup>18</sup> justifiably complain that the water mandates are inconsistent with other statutes mandating affordable housing components in city plans.

### *C. The Limited Power to Use Water to Restrict Growth*

#### 1. Growth Moratoria

Cities have some authority to defer growth until water and sewer capacity is adequate to serve the new residents.<sup>19</sup> Growth moratoria are a long-established land use planning device to freeze development for a limited period of time to allow cities to formulate permanent land use plans for an area slated for development. The extra time is supposed to allow cities to secure water supplies, obtain financing, and construct the necessary infrastructure.<sup>20</sup>

Cities may impose moratoria on water service.<sup>21</sup> However, if a moratorium is a de facto permanent freeze on development, the city may be held responsible for an unconstitutional taking of property.<sup>22</sup> In 1987, the U.S. Supreme Court held in *First English Evangelical Lutheran Church of*

12. *Pagosa Springs Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007). The Colorado Supreme Court remanded a water court decision for failure to make sufficient findings concerning the area's future growth projections. The water court awarded two small districts in southwestern Colorado a conditional water right for 29,000 acre feet, and return flows, of water with the right to continuously refill a reservoir based on a 100-year planning horizon. Citing a National Research Council study and several academics (including the authors), the court held that municipalities' statutory exemption from the need to have a vested legal interest in the lands served does immunize governmental water supply agencies from the state's anti-speculative doctrines. An agency must demonstrate three elements to make a non-speculative appropriation: (1) what is a reasonable water supply planning period; (2) what are the substantial population projections based on a normal growth rate for that period; and (3) what amount of available unappropriated water is reasonably necessary to serve reasonably anticipated needs of the governmental agency for the planning period, above its current supply? Governmental applicants must also demonstrate that it will put the water to actual beneficial use within a reasonable period of time. Justice Gregory Hobbs grounded the decision on the need to make maximum utilization of the state's limited waters and to spread the benefits derived from them as widely as possible, and expressly acknowledged the state's blue future adding that "[m]aximum utilization does not mean that every ounce of Colorado's natural stream water ought to be appropriated; optimum use can be achieved only through proper regard for all significant factors, including environmental and economic concerns." *Id.* at 314.

13. See ROBERT GLENNON, *WATER FOLLIES: GROUND-WATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS* 32-34 (2002).

14. *E.g.*, *Wayman v. Murray Corp.*, 458 P.2d 861 (Utah 1969).

15. See Robert J. Glennon & Thomas Maddock III, *In Search of Subflow: Arizona's Futile Effort to Separate Groundwater From Surface Water*, 36 ARIZ. L. REV. 567 (1994).

16. See KENNETH T. JACKSON, *THE CRABGRASS FRONTIER: THE SUBURBANIZATION OF THE UNITED STATES* (1985).

17. AMERICAN RIVERS ET AL., *PAVING OUR WAY TO WATER SHORTAGES: HOW SPRAWL AGGRAVATES THE EFFECTS OF DROUGHT* (2002), available at <http://www.smartgrowthamerica.org/waterand sprawl.html>; see also Sid Perkins, *Paved Paradise: Impervious Surfaces Reduce a Region's Hydrology, Ecosystems—Even Its Climate*, SCI. NEWS, Sept. 4, 2004, at 152, available at <http://www.science news.org/articles/20040904/bob8.asp>.

18. See *infra* Part III.B.

19. See *San Mateo Coastal Landowners' Ass'n v. County of San Mateo*, 45 Cal. Rptr. 2d 117, 136-37 (Cal. Ct. App. 1995); *First Peoples Bank of N.J. v. Township of Medford*, 599 A.2d 1248, 1254 (N.J. 1991); cf. *Neenah Sanitary Dist. v. City of Neenah*, 647 N.W.2d 913, 918 (Wis. Ct. App. 2002) (city need not give objective reasons for refusal to extend sewer service and absent showing of bad faith implied, contractual duty of good faith and fair dealing not violated); *Bailey v. City of Goodman*, 69 S.W.3d 154, 158 (Mo. Ct. App. 2002) (city has discretion not to extend water service to new area in its service area).

20. Diane Albert, *Building Moratoria: Strategies and Tools for Governing Bodies*, WATER RESOURCES IMPACT, Nov. 2005, at 16.

21. *Swanson v. Marin Mun. Water Dist.*, 128 Cal. Rptr. 485, 490-91 (Cal. Ct. App. 1976); *McMillan v. Goleta Water Dist.*, 792 F.2d 1453, 1457 (9th Cir. 1986).

22. *Lockary v. Kayfetz*, 917 F.2d 1150, 1155-1156 (9th Cir. 1992); see Dennis J. Herman, *Sometimes There Is Nothing Left to Give: The Justification for Denying Water Service to New Consumers to Control Growth*, 44 STAN. L. REV. 429, 443-46 (1990).

*Glendale v. County of Los Angeles*<sup>23</sup> that a landowner could recover damages for a temporary taking of property and suggested that courts must now distinguish between unconstitutional temporary takings and “normal delays” in obtaining development permissions. After *Lucas v. South Carolina Coastal Council*,<sup>24</sup> landowners argued that there was no justification for a temporary suspension of the right to develop. In 2002, the Supreme Court refused to apply the *Lucas* rule to moratoria and endorsed them as a legitimate planning tool. In *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*,<sup>25</sup> the court characterized the potential taking as regulatory rather than a physical taking, and applied the *Penn Central Transportation Co. v. New York City*<sup>26</sup> balancing test to uphold a 32-month moratorium.

Thus, the *First English* compensation rule only applies after the court has determined that the moratorium is not a proportional, reasonable, and good-faith response to threats to a community posed by development. *Tahoe-Sierra* can best be characterized as an application of the precautionary principle because it allowed a public agency a reasonable period of time to respond to a substantial risk of an adverse impact if an activity were not limited. The case does not afford cities an excuse to delay developing new supplies unless they can demonstrate that development poses environmental issues that need to be studied and mitigated.

Judicial treatment of water moratoria is consistent with this analysis. Courts have approved water service moratoria but have suggested they are valid only so long as a true supply deficit lasts; cities cannot use moratoria permanently to limit growth.<sup>27</sup> One of the problems of a moratorium is calculating when there is a shortfall. A drought will satisfy this requirement, but the return of a “normal” wet year may eliminate the supply deficit.

## 2. Growth Caps

Capping urban growth is assumed to be off the policy agenda. Although the idea surfaces periodically, no area of the West has tried to stop growth or even to cap it. The reasons are economic and political, but the lack of interest in this option reflects the widespread assumption in land use law that a community cannot isolate itself from the rest of the world.

The constitutional right to travel prohibits a state from barring new residents. While a community’s imposition of a flat cap on growth has been held invalid,<sup>28</sup> several cases have upheld caps for resource-constrained areas.<sup>29</sup> Subse-

quent cases have also held that the right to travel is one of entry, not location; there is no right to locate in a particular community within the state.<sup>30</sup> Thus, communities retain considerable discretion to use their land use powers to decide where and under what conditions they will accommodate growth.<sup>31</sup> Courts, however, have invalidated phased growth ordinances if the rate is substantially less than the actual rate of growth in the community.<sup>32</sup>

## 3. Service Denials

Many cities may wish to time the rate of growth to reliable, available “wet” water. The power of a city to defer growth puts it at the vortex of two potentially inconsistent doctrines: public utility law’s “duty to serve” and land use law’s authority for local governments to regulate the timing and manner of development on private land. Municipal water suppliers are generally either public utilities under state law or subject to judicially imposed public utility duties.

Public utilities have a duty to serve all customers within a service area, provided that the system as a whole can absorb the cost and still yield a reasonable rate of return. A leading California case extended the duty to serve to include a duty on water providers to acquire the necessary supplies to meet projected demands.<sup>33</sup> The rationale for this rule is ultimately based on basic ideas of fairness and estoppel. It is designed primarily to protect those who had entered into a service relationship with a common carrier or were within the service area of a public utility, but were denied service when the carrier or the utility was able or should have been able to provide service, at least in the short run.

The acquired water has often been sold to consumers at average or other marginal cost so there has been little, if any, incentive to conserve, although pricing practices are slowly changing as energy security and treatment costs increase.<sup>34</sup> The duty to serve has been criticized as out of step with the modern land use cases that allow cities to control the rate and location of new development short of totally deflecting it to other communities in the region.

In response, courts have held that the duty to serve does not prevent municipalities from subordinating utility service to land use plans. This includes the power to refuse service until an area is ready for development.<sup>35</sup> Cities also have the power to deny subdivision approvals for new subdivisions with water and sewer service that are inconsistent with a county’s land use plan.<sup>36</sup> Modern courts have clearly

23. 482 U.S. 304, 314-22, 17 ELR 20787 (1987).

24. 505 U.S. 1003, 22ELR 21104 (1992). For discussion of *Lucas*, see *infra* Part III.C.

25. 535 U.S. 302, 32 ELR 20627 (2002).

26. 438 U.S. 104, 8 ELR 20528 (1978); see also Matthew G. St. Amand & Dwight H. Merriam, *Defensible Moratoria: The Law Before and After the Tahoe-Sierra Decision*, 43 NAT. RESOURCES J. 703 (2003).

27. *Tahoe-Sierra*, 535 U.S. 302; Palazzolo v. Rhode Island, 533 U.S. 606, 633, 32 ELR 20516 (2001).

28. *City of Boca Raton v. Boca Villas Corp.*, 371 So. 2d 154 (Fla. Dist. Ct. App. 1979).

29. In *City of Hollywood v. Hollywood, Inc.*, 432 So. 2d 1332 (Fla. Dist. Ct. App. 1983), the court upheld a 3,000-unit density cap for small strip of land on the Atlantic coastline. *Home Builders Ass’n v. Cape Code Comm’n*, 808 N.E.2d 315 (Mass. 2004), found that a building permit cap was valid to protect the sole source aquifer for a town on Cape Cod.

30. *Tobe v. Santa Ana*, 892 P.2d 1145, 1161-66 (Cal. 1995) (no duty to provide camping space to facilitate right to travel for the homeless).

31. *Construction Indus. Ass’n v. City of Petaluma*, 522 F.2d 897, 5 ELR 20519 (9th Cir. 1975), remains the leading case upholding phased growth but suggests there are limits on the city’s accommodation strategy.

32. *Stoney-Brook Dev. Corp. v. Town of Freemont*, 474 A.2d 561, 563-64 (N.H. 1984).

33. *Lurawka v. Spring Valley Water Co.*, 146 P.2d 640, 646 (Cal. 1915).

34. Anne Gonzales, *Liquid Gold*, SACRAMENTO BUS. J., Mar. 14, 2003, available at <http://www.bizjournals.com/sacramento/stories/2003/03/17/focus1.html>.

35. See *Dateline Builders, Inc. v. City of Santa Rosa*, 194 Cal. Rptr. 258, 266 (Cal. Ct. App. 1983); *Moore v. City Council of Harrodsburg*, 105 S.W. 926, 926 (Ky. 1907) (“In the absence of fraud, corruption, or arbitrary action, the judgment of the city officials as to [extension of water service] is beyond judicial control.”).

36. In *Serpa v. County of Washoe*, 901 P.2d 690, 691-92 (Nev. 1995), the court held that Washoe County (Reno) can prohibit five-acre or less

recognized that cities do have the ability to control their growth rates and discretion to distribute the growth.

### III. Emerging Linkage of Water and Land Use Policies in the West

All over the West, cities are beginning to realize that new municipal water supplies must be addressed in the context of other competing uses in the watershed or basin, and that there may be limits to the amount of available water to support new growth. This recognition takes many forms.

The most modest step is to incorporate water supply planning into land use planning. For example, water conservation is an element in the emerging “Envision Utah” regional planning process.<sup>37</sup> Some states have taken the additional step of giving local governments more discretion to coordinate water service and urban growth. Several have taken the far-reaching step of conditioning new development on an adequate water supply.<sup>38</sup>

A few states are moving to require that “wet” water be in place before new developments can be approved, and many other states are imposing greater water assessment and planning duties on local governments. Nevada, for example, requires that all water suppliers prepare conservation plans based “on the climate and living conditions of” the service area,<sup>39</sup> and includes weak future supply assessment duties in the state’s mandatory comprehensive regional water plans. The only mandatory components are drought reserves and future growth margins.<sup>40</sup>

Some water-stressed cities, such as Santa Fe, New Mexico, have developed innovative conservation measures.<sup>41</sup> A more extreme step would be to close an area to urban development, but this is a step that all states and local governments seek to avoid.

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subdivisions “until a new water source is available,” and the county’s action did not impair state water rights because the power to define rational growth “includes the ability of a county government to determine water availability for itself.” In *Schofield v. Spokane County*, 980 P.2d 277, 281 (Wash. Ct. App. 1999) it was held the county has the power to deny rezoning for riparian land because no central sewer system existed to serve the proposed ranchettes. A state order to a financially strapped city to improve its antiquated sewage system was sufficient reason to terminate previously extraterritorial service in *City of Attalla v. Dean Sausage Co.*, 889 So. 2d 559, 569 (Ala. Civ. App. 2003). The court in *Gould v. Santa Fe County*, 37 P.3d 122, 127 (N.M. Ct. App. 2001) held that the county improperly granted a variance to allow subdivision of a 20-acre minimum lot in a water-stressed area to permit extended family to live together because it was based on personal rather than statutory factors.

37. For an overview of options for integrating water into land use decision making, see GROWING TOWARD MORE EFFICIENT WATER USE: LINKING DEVELOPMENT, INFRASTRUCTURE, AND DRINKING WATER POLICIES 9-11 (2006) (EPA 230-R-06-001), available at [http://www.epa.gov/smartgrowth/pdf/growing\\_water\\_use\\_efficiency.pdf](http://www.epa.gov/smartgrowth/pdf/growing_water_use_efficiency.pdf).

38. See CAL. GOV’T. CODE §66473.7 (Deering 2007); Arizona Groundwater Management Act, ARIZ. REV. STAT. ANN. §45-401 et seq. (1980); ARIZ. ADMIN. CODE §§R12-15-701 to -730 (1995) (implementing regulations for 1980 Arizona Groundwater Management Act).

39. NEV. REV. STAT. §540.131 (2007).

40. *Id.* §540A.140(3)(b).

41. See Kyle Harwood, *Santa Fe Water, Resources, and Policy: Evolving “Wet Growth” Regulations*, WATER REP., Feb. 15, 2007, at 22 [hereinafter Harwood, *Evolving “Wet Growth” Regulations*].

#### A. Municipal Water Supply Planning

The most common strategy to link water and land use planning is to require water supply elements in comprehensive plans. The link with the most bite places the responsibility for supply acquisition on local governments and developers. This form of growth management pressures municipal water suppliers to acquire the necessary supplies or to devise an alternative strategy to meet future water demands because the issue is only where, not whether, the demand will exist. In many western states, however, water planning elements are integrated weakly if at all in the larger public planning process. These new planning mandates are built on the old water resources planning framework. Until the 1980s, water resources planning meant primarily project planning. Water supply retains the single focus—more available water—but expands it to consider a wide range of supply options. The possibility of limiting growth to conserve alternative uses of water is seldom one of those options.

Cities facing more immediate shortages continue to rely on a mix of supply acquisition options, giving increased weight to conservation as opposed to a simple reliance on the acquisition of new water. Of course, the balance between the two strategies varies from city to city, and conservation cannot carry the entire burden of supplying new growth. Some cities are looking to secure future water supplies by building off-stream storage facilities.<sup>42</sup>

San Diego illustrates one possible new growth accommodation model. The growing city faces the double problem of limited natural surface and groundwater supplies and a low-priority Colorado River entitlement. The city has linked water supply and growth as part of its ongoing growth management program with a six-part strategy. In the future, in addition to possible water transfers from the embattled and divided fiefdom known as the Imperial Irrigation District, San Diego will depend on a combination of the following: (1) more efficient use of existing supplies; (2) demand management; (3) reallocation of existing supplies through water marketing; (4) more limited new storage and distribution facilities; (5) desalination; and (6) greater conjunctive surface and groundwater use.<sup>43</sup> This strategy has allowed it to add some 300,000 new residents since 1990 without increasing its water use during that period.<sup>44</sup>

#### B. State-Municipal Duty to Assure Adequate Drought-Proof Water Supplies

Arizona and California view the existence of an adequate, long-term, drought-proof supply of water as an urban consumer entitlement. This entitlement is unconnected to any idea of water as a limit on urban growth, as the Arizona experience illustrates. As the price for construction of the federally funded Central Arizona Project (CAP), Arizona had to agree to stop mining its aquifers to support urban growth. Accordingly, in 1980, the state adopted the Groundwater

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42. See Tarrah Henrie, *Why Some Water Districts Decided to Dam It*, WATER RESOURCES IMPACT, Nov. 2005, at 9.

43. SAN DIEGO COUNTY WATER AUTHORITY, 2005 URBAN WATER MANAGEMENT PLAN (2005), available at <http://www.sdcwa.org/manage/pdf/2005UWMP/FinalDraft2005UWMP.pdf>.

44. Editorial, *Lakes Saved*, SAN DIEGO UNION-TRIB., Jan. 19, 2002, at B10.

Management Act (GMA).<sup>45</sup> Despite intense opposition, rules adopted pursuant to the Act imposed a duty on all new developments in the four groundwater basins included within the designated active management areas (AMAs)—and thus on their municipal suppliers—to establish “a sufficient supply of water which will be physically available to satisfy the applicant’s 100-year projected water demand.”<sup>46</sup> The rules are structured to establish an assured water supply by eliminating reliance on continued groundwater mining.

Initially, the rules set off a scramble to acquire agricultural water rights in remote counties, but more recently municipal suppliers began paying the high CAP rates for Arizona’s underused Colorado River entitlement. This price shock was alleviated by the creation of the Central Arizona Groundwater Replenishment District, which allows members to secure and withdraw groundwater.<sup>47</sup> As Phoenix and Tucson have used more surface water from CAP, municipal water use has started to decline in part because of a wetter than average cycle, groundwater conservation, and the increasing reliance on recycled (gray) water for turf irrigation.

Importantly, growth is expanding outside the metropolitan areas, beyond the reach of the GMA. Populations outside AMAs have doubled since the passage of the Act in 1980 and now total more than one million people.<sup>48</sup> There is no consensus as to how to address the environmental impacts of the growth. Arizona’s Department of Water Resources reviews building plans to determine whether water supplies will last 100 years, but their determination has no legally binding effect. A review of state records in 2005 revealed that 35% of the applications reviewed by the state since 2001 were returned with an “inadequate water supply” finding, but most of those projects proceeded nonetheless.<sup>49</sup> As a result, many subdivisions in rural Arizona are constructed with tenuous and unreliable water sources.

Claiming that Arizona’s state law “is a joke,” the supervisors of Pima County (the county that includes Tucson and its fast-growing suburbs) recently drafted a new policy to take into account the impact of groundwater pumping when deciding whether to grant a rezoning or comprehensive plan amendment.<sup>50</sup> The new policy will not apply to developments that draw water from municipal supplies or other providers using renewable supplies, and it will only apply to developments exceeding four acres. The main change from existing procedures is that this new policy will require developers to provide information in the early stages of the process rather than after they have already received rezoning. Projects farthest from renewable water sources will require more extensive mitigation, or may be refused permission to develop.

California’s approach shifts more responsibility directly to developers to find adequate supplies. California enacted

legislation in 1995, primarily in response to the rapid and dispersed urban growth and conversion of prime agricultural land in northern California and the San Joaquin Valley. The legislation required cities to have a firm water supply plan in place before large new developments are approved. Unlike Arizona’s, the California statute does not impose a de facto duty on cities to acquire sufficient water rights, and initially it was not enforced.<sup>51</sup>

The state legislature tightened the law in 2001, prohibiting approval of tentative subdivision maps, parcel maps, or development agreements for subdivisions of more than 500 units unless there is a “sufficient water supply.”<sup>52</sup> If the supplier has fewer than 5,000 connections, the adequate supply requirement applies to any subdivision that will amount to a 10% increase in service connections.<sup>53</sup>

Sufficient supply is defined as the total supply available during “normal, single-dry, and multiple-dry years within a 20-year projection.”<sup>54</sup> To calculate this, the supplier must include a number of contingencies such as the availability of water from water supply projects, “federal, state, and local water initiatives such as CALFED” and water conservation.<sup>55</sup> Enforcement is tied to the duty of water suppliers to prepare urban water management plans.<sup>56</sup> Water supply assessments must either be consistent with these plans or meet the available water supply criteria. Assessments may trigger a duty to acquire additional water supplies.<sup>57</sup>

These duties will be enforced primarily under the California Environmental Quality Act (CEQA).<sup>58</sup> The process is intended to allow objectors to probe the underlying assumptions and reliability of the data on which the assessments are made. This could be a serious impediment to business as usual, as evidenced by recent CEQA litigation.<sup>59</sup>

51. CAL. WATER CODE §§10910-10914 (Deering 2005).

52. CAL. GOV’T CODE §66473.7(b)(1).

53. *Id.* §66473.7(a)(1).

54. *Id.* §66473.7(a)(2).

55. *Id.* §66473.7(a)(2)(D).

56. CAL. WATER CODE §10910(c).

57. *Id.* §10911.

58. CAL. PUB. RES. CODE §§21000-21006 (Deering 2005).

59. In *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova*, 150 P.3d 709, 37 ELR 20031 (Cal. 2007) the court dealt with specific rules governing this evaluation, including requirements that an environmental impact report (EIR) clearly explain how a project’s long-term water needs will be met, what impacts this would have on supply sources, and how those impacts would be mitigated. Note that this is a disclosure requirement rather than a mandate that water definitely be available. The California Supreme Court ruled that the CEQA is satisfied if the EIR fully explains the uncertainties and analyzes their impacts and potential mitigation. In 2000, an intermediate appellate court invalidated the EIR prepared in connection with the renewal of the California State Water Project contracts and the subsequent Monterey Water Users Agreement. See *Planning & Conservation League v. Department of Water Resources*, 100 Cal. Rptr. 2d 173, 31 ELR 20178 (Cal. Ct. App. 2000). The court determined that the state drought delivery projections were “paper” water, and that reliance on this phantom entitlement could seduce local jurisdictions to approve developments in excess of the actual guaranteed supply. In 2003, to settle the suit the state agreed, among other things, to drop the word “entitlement” from state contracts and to prepare more accurate supply and delivery forecasts. See *Settlement Agreement at A-2, B-1, Planning & Conservation League v. Department of Water Resources* (May 5, 2003), available at [http://www.des.water.ca.gov/mitigation\\_restoration\\_branch/rpmi\\_section/projects/docs/Monterey%20Settlement%20Agreement%20.pdf](http://www.des.water.ca.gov/mitigation_restoration_branch/rpmi_section/projects/docs/Monterey%20Settlement%20Agreement%20.pdf). Similarly, an intermediate court of appeal invalidated an EIR for a 2,555-unit housing and mixed use project in the Santa Clarita Valley north of Los Angeles. Santa Clarita Org. for

45. ARIZ. REV. STAT. ANN. §§45-401 et seq.

46. ARIZ. ADMIN. CODE §R12-15-703(b).

47. See Katherine L. Jacobs & James Holway, *Managing for Sustainability in an Arid Climate: Lessons Learned From 20 Years of Groundwater Management in Arizona, USA*, 12 HYDROGEOLOGY J. 52, 58-60 (2004).

48. Shaun McKinnon, *Solutions to Water Concerns a Hard Sell to Rural Residents*, ARIZ. REPUBLIC, June 28, 2005, at 8.

49. See Shaun McKinnon, *Developers Cashing in on Weak Water Laws*, ARIZ. REPUBLIC, June, 27, 2005, at A1.

50. Erica Meltzer, *New Water Policy May Curb Homes on Fringes*, ARIZ. DAILY STAR, Dec. 13, 2006.

These examples of new state legislation and local initiatives illustrate the extent to which the federal government and state governments are devolving much of their historic responsibility for water resources planning to local governments. Throughout the United States, local governments are assuming broader water supply planning duties. The focus on water planning remains the location of new, drought-proof supplies, but planning is being expanded to include greater consideration of the impacts on existing users, watersheds of origin, alternative sources of supply, and demand management conservation. In addition, these plans can no longer be project wish lists or based on hydrologically weak assumptions about supply availability. Plans must be realistic assessments of what water will be available under worst-case conditions.

### C. Water-Constrained Growth

Truly supply-constrained cities may be able to limit development permanently for water-related reasons. Courts have upheld communities' discretion to deny development permission in areas with inadequate water supplies, and courts have also held that landowners have no constitutional right to use groundwater if individual well use poses public health risks or if a conservation regime has been put in place. Courts have consistently held that there is no fundamental right to use water from a particular source. The usual rationale is the protection of public health.

Santa Fe is coming close to making water availability the primary determinant of growth.<sup>60</sup> The city first restricted new water connections outside city limits unless the customer had a valid, preexisting agreement for water service. Next, the city's Water Budget Administrative Ordinance, enacted in 2003, required all new projects within the city to offset a project's water budget by retrofitting existing toilets with high-efficiency units.<sup>61</sup> The 2005 Water Rights Transfer Ordinance requires new large construction projects to transfer water rights to the city prior to issuance of building permits.<sup>62</sup>

Water rights are property rights, but they differ significantly from land rights. At the heart of western water law is the requirement that a water right is based on the application of water to continued beneficial use. It is the use of water that triggers a constitutionally protected investment-backed expectation. Thus, there is no constitutional right to the future use of groundwater.

The leading case establishing this principle is *Town of Chino Valley v. City of Prescott*.<sup>63</sup> Arizona groundwater law allows water to be transported within sub-basins of AMAs. The community from which the water was being exported

argued that the law took property without due process of law. Invoking the scientifically unsound analogy to things *ferae naturae* (of a wild nature; used to designate animals that are not usually tamed), the court held that "there is no right of ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and . . . the right of the owner of the overlying land is simply to the usufruct of the water."<sup>64</sup> This statement may not hold in all states. For example, states have recognized that groundwater is a component of the value of land taken by eminent domain.<sup>65</sup> Nebraska has since moved from its long-standing opposition to groundwater transfers to acceptance of regulated transfers. Nonetheless, states hold the power to conserve groundwater by deciding how much will be used by whom and under what conditions. That use—not abstract claims of ownership—is the basis of constitutionally protected investment-backed expectations.

The Supreme Court's decision in *Lucas*,<sup>66</sup> which held that a beach erosion protection ordinance that prevented the construction of a house was a per se "taking," may seem inconsistent with this assertion. The Court clearly held that if there is a total deprivation of all development potential, the state cannot justify a regulation on either consumer protection or resource conservation grounds.<sup>67</sup>

*Lucas*, however, is not applicable to the denial of development permission to inadequately served land on the fringe of an urban or suburban area for two reasons. First, *Lucas* involved one of the two categorical per se takings that the Court recognizes: the state action effected a "wipeout" of all development value on the property. Second, in addition to some minimum rate of return on investment in land, the other fundamental principle embedded in takings jurisprudence is the right to equal treatment. Courts are more likely to balance the public benefit against an individual loss which falls short of a total deprivation if: (1) the area selected for non-development is relatively large; (2) the selected area is not part of an already developed area; and (3) the government's rationale is grounded on adequately documented scientific grounds.<sup>68</sup>

Any land use plan or regulation that limits urban expansion runs the risk of being invalidated as a taking. However, land use policies that link growth restraints to water availability do not raise the unfairness concerns that the Supreme Court's recent takings jurisprudence has identified. Courts have long recognized that the police power can be used to protect land use consumers against risks that they may not fully understand.<sup>69</sup> The police power cannot be used to strip value from property simply by enacting legislation that limits the use of land, but over time, the police power can be used to dampen expectations and force landowners to adjust to new regulatory environments. Justice Sandra Day O'Connor's concurring opinion in *Palazzolo v. Rhode Island*<sup>70</sup> noted that a "regulatory regime in place at the time the claimant acquires the property at issue helps to shape the

Planning the Env't v. County of Los Angeles, 131 Cal. Rptr. 2d 186 (Cal. Ct. App. 2003). The court found that the EIR was not sufficiently detailed because it did not include a discussion of the serious risks of reliance on less-than-projected State Water Project supplies. For a careful analysis of the pros and cons of assured supply laws in California and other western states, see Lincoln L. Davies, *Just a Big, "Hot Fuss"?: Assessing the Value of Connecting Urban Sprawl, Land Use, and Water Rights Through Assured Supply Laws*, 34 *ECOLOGY L.Q.* 1217 (2007).

60. See Kyle Harwood, *The Evolution of Wet Growth Regulations: City of Santa Fe*, WATER RESOURCES IMPACT, Nov. 2005, at 5.

61. *Id.* at 6.

62. Harwood, *Evolving "Wet Growth" Regulations*, *supra* note 41.

63. 638 P.2d 1324 (Ariz. 1981).

64. *Id.* at 1328.

65. See *Sorenson v. Lower Niobrara Natural Resources Dist.*, 376 N.W.2d 539 (Neb. 1985).

66. 505 U.S. at 1028-29.

67. *Id.*

68. See, e.g., *Tahoe-Sierra Preservation Council v. Tahoe Reg'l Planning Agency*, 535 U.S. 302, 32 ELR 20627 (2002).

69. See Alison Dunham, *Flood Control via Police Power*, 107 U. PA. L. REV. 1098 (1959).

70. 533 U.S. 606, 32 ELR 20516 (2001).

reasonableness of those expectations.”<sup>71</sup> As the Supreme Court made clear in *Lingle v. Chevron U.S.A., Inc.*<sup>72</sup> and *Tahoe-Sierra*,<sup>73</sup> the primary function of the takings doctrine is to compensate landowners who have been unfairly singled out to bear a burden that should be borne by the public. Comprehensive water supply-based urban limits are not such a case.

#### IV. Conclusion: Is Water a Limit on Growth?

Experience teaches us that the West’s climate and landscapes do not pose insurmountable barriers to large-scale urban settlement. Toward the end of his life, the great western scholar Wallace Stegner said: “California . . . has the water and the climate and the soil to support a population like Japan, if it has to.”<sup>74</sup> This lesson reflects the hard truth that thanks to technology, we can put a great many people in most areas of the West. The real question is whether this is a future we wish to embrace.

71. *Id.* at 633 (O’Connor, J., concurring).

72. 544 U.S. 528, 537, 35 ELR 20106 (2005).

73. 535 U.S. at 321-22.

74. WALLACE STEGNER & RICHARD W. ETULAIN, CONVERSATIONS WITH WALLACE STEGNER ON WESTERN HISTORY AND LITERATURE (2d ed. 1990).

As population increases and conurbations spread ever outward, the resource use choices facing the West become tougher because their opportunity costs increase. Our challenge today is to understand the continuing consequences of the resource use choices that we have made and the possibility of alternative choices in the future.

We can recognize many signals that we are testing the limits of water in the West: declining and disappearing stocks of anadromous fish and their food webs; escalating economic and political costs of water service for new development; bitter and prolonged legal battles for overallocated river systems; and desperate attempts to build uneconomical and arguably unnecessary water projects in order to convert “paper” water rights to “wet” water.

The solution is far more complex than linking water and land use planning. The United States is still a growing country premised on a wider range of opportunities compared to most countries of the world. Thus, water availability will never be used as a tool to choke off growth on any large scale. But we can no longer be as indifferent to the environmental and other costs as we once were. In taking the first step and thinking more deliberately about the consequences of growth, cities facing water supply constraints may begin to alter their course and seek a more sustainable way to live in and with this landscape.

## RESPONSE

### Living With Ourselves: What Trade Offs Will Get Made to Supply Growing Western Communities With Water, and Who Decides?

by Thomas J. Graff and Jennifer Pitt

**W**ill the water demands of the apparently unstoppable population increases of the ever-exploding cities of America's Southwest ultimately be a factor in limiting that expansion? Historically the "Field of Dreams" phenomenon has ruled the day: the suburbs have sprouted and the water to keep them green has arrived. Are times changing? What happens if the old patterns continue to prevail?

We conclude that in the long term, it is unlikely that population growth in the western United States will be constrained by physical limits in water supply. Even if reallocations to growing cities and suburbs from other sectors (agriculture and the environment) are blocked and global warming alters precipitation and runoff patterns, desalination of ocean water remains a potentially bottomless well, assuming environmental impacts on our shorelines, oceans, and climate can be mitigated and costs reduced.

In the short and intermediate terms, however, communities and developers in the West looking to grow, face considerable challenges in securing new water supplies and in managing what is already developed. In their review<sup>1</sup> of the historical legal framework that prevents linking water availability to growth in the West as well as emerging law beginning to establish these links, A. Dan Tarlock and Sarah Bates cover fertile ground. We agree with their conclusion that water scarcity does not limit growth per se, but that how we choose to supply water and grow communities can have tremendous impacts on both the environment and on other already established communities, and that the choices we make in supplying water involve real trade offs.

The question of who decides what water deals look like can matter quite a lot. While water is typically considered a public resource, the institutions managing water resources take all forms, including public agencies with boards elected by citizens, public agencies with boards appointed by elected officials, quasi-public entities with boards selected by members with water rights, and fully private companies. Traditionally, many water deals have been back-room affairs, and the public has cared little about them. However, as one western basin after another has faced crises, news media coverage of water management has increased, and public interest in water and the implications of water development and management have swelled. In the past five years, there have been more than 3,000 stories in major newspapers about water supply and

its link to drought or the environment.<sup>2</sup> But even with this increased attention, decisions do not always represent the input of all affected parties.

The West's water resources have largely been developed. In 1992, the National Academy of Sciences opined that "in the West today, the era characterized by the construction of large subsidized water storage facilities and distribution systems has ended, and an era of reallocation and improved management has begun."<sup>3</sup> This has not stopped some politicians and water managers from promoting projects once considered too costly, too remote, and far too environmentally sensitive to be authorized. Still, the plans most likely to succeed in meeting water needs involve investments in conservation and reclamation as well as reallocations among existing water rights holders. In addition, water managers are being forced to develop shortage plans as they confront the vulnerability of water supplies once thought secure, as regulatory restrictions based on environmental impacts are imposed on water deliveries and as the effects of climate change on water are better understood.

Some novel approaches have been tried in looking for consensus on water policy. Construction of the Yuma Desalting Plant was completed in 1992, but the plant has sat dormant for most of the past 15 years. Derided by environmentalists concerned for the fate of a large wetlands area in the Colorado River Delta, the Ciénega de Santa Clara, the plant's operation would divert the brackish water that sustains the Ciénega and deliver brine waste to the wetlands instead. Despite this, as well as the plant's reputation as a white elephant, water managers from across the Southwest have shown a revived interest in operating the desalter as means to protect against shortages in Arizona, and as a potential supply of new water for Las Vegas and southern California.

In 2004, the Central Arizona Water Conservancy District (CAWCD) convened a workgroup of interested individuals to explore whether there might be a way to operate the plant while maintaining the quantity and quality of habitat at the Ciénega.<sup>4</sup> Workgroup membership included the CAWCD, federal, state, and local government representatives, and environmental interests. After more than a year of discussions, the group published a report informally embracing an array of possibilities including operating the plant in a manner that does not harm the wetland, operating the plant for purposes other than that for which it was originally authorized, as well as alternatives to operating the plant that could pro-

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Thomas J. Graff is Senior Counsel with the Environmental Defense Fund in San Francisco, California. Jennifer Pitt is a Senior Resource Analyst with the Environmental Defense Fund in Boulder, Colorado.

1. A. Dan Tarlock & Sarah Bates, *Western Growth and Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies?*, 38 ELR (ENV'T L. & POL'Y ANN. REV.) 10582 (Aug. 2008) (a longer version of this Article was originally published at 27 PUB. LAND & RESOURCES L. REV. 33 (2006)).

2. Based on the following LexisNexis terms and connectors search of the "Major U.S. Newspapers" database: (SUBJECT ((water or drought) and environment) and date geq (05/29/2003)).

3. NATIONAL RESEARCH COUNCIL, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT 16 (1992).

4. CENTRAL ARIZONA PROJECT, BALANCING WATER NEEDS ON THE LOWER COLORADO: RECOMMENDATIONS OF THE YUMA DESALTING PLANT/CIÉNEGA DE SANTA CLARA WORKGROUP (2005), available at <http://www.cap-az.com/docs/newfinaldocument.pdf>.

tect Arizona water users from shortages. Despite its controversial past, water managers are now able to think about using the Yuma Desalting Plant to provide a new water supply without harming the environment. They can do this because they went to the trouble to listen to those who might otherwise have stood in their way, and to make avoidance of environmental impacts central to how they shape the project. The plant is not yet operating, but in late 2007, a new group of federal, state, and local agencies revived the conversation with environmental groups, intending to develop more detail around how the plant might operate without harm to the wetlands.

Not all projects are developed in such an open and inclusive spirit. A private developer has proposed a pipeline from the Flaming Gorge Reservoir in Wyoming to supply the Front Range communities of Colorado. To date any planning has been done in private, and few details have been revealed. The developer concedes that his bid to build the pipeline outside of the traditional water agency structure is unconventional, and he has been described as an “outlaw, like a member of Butch Cassidy’s Wild Bunch.”<sup>5</sup> Water users from Colorado’s Western Slope, despite holding senior water rights, have expressed concerns that a major new development serving urban areas with little capacity to “turn off the taps” once the water starts flowing would put their water use in jeopardy in the event of a Colorado River Compact call.<sup>6</sup> Environmental representatives have expressed further concerns about the pipeline’s impact on Green River habitat for the endangered Colorado pikeminnow directly downstream from the diversion.<sup>7</sup>

In recent months, water supply reliability concerns have come into sharp focus in coastal southern California as court decisions have reduced the amount of water that may be pumped south from the San Francisco Bay Delta. California’s cutback of its Colorado River Compact entitlement to 4.4 million acre feet four years ago, combined with the urban areas’ continuing junior status within that limitation, has been ameliorated only in part by voluntary water transfers negotiated between the agricultural and urban areas served from the Colorado River. With looming shortages on the Colorado in the wake of prolonged drought threatening even the reduced 4.4 million compact right, southern California is facing a significant short-term challenge. In the long term, problems in the San Francisco Bay Delta could impact water pumping even more severely, and permanent water supply reductions throughout the West due to the impacts of climate change create a cloudy long-term picture for one of the country’s largest urban areas.

Meanwhile, the decisions about how shortages should be allocated within the State Water Project (SWP), as well as within the Metropolitan Water District (MWD) of southern California’s service area, have moved to center stage in the region. Critics of the SWP’s allocation claim that the project has based its projected deliveries on unrealistic estimates of future water availability and that the MWD and other urban contractors unreasonably bargained away their preferential rights to water in the event of shortages in the project. MWD staff, meanwhile, has itself devised an internal shortage al-

location plan that gives more water to those constituent members that depend heavily on the MWD, as well as to those that abruptly lose local supplies, are located in growing areas, or have invested in water conservation.<sup>8</sup> This contrasts starkly both with the MWD’s shortage allocation strategies of the past, which were distributed evenly throughout the service area, and with what appears to be the legally required internal allocation that is based on preferential rights determined by historic investments in the MWD’s infrastructure and development. Vocal critics of the MWD’s plan fear that it disadvantages communities that are among the less affluent in the region, including Bell Gardens, Carson, Cerritos, Downey, Long Beach, Norwalk, Paramount, and Pico Rivera, that would have to pay substantially more for water at the margin to make up for shortfalls in their allocation.<sup>9</sup> They also note that MWD board representation is based on property assessments rather than population, suggesting that affluent communities have more power in the policy approval process. The Pacific Institute has recommended that the MWD subsidize conservation improvements in less-affluent communities; in any case, voluntary water acquisitions are likely to take place to reduce the overall shortage, and the question of who pays for these acquisitions will likely be hotly debated for years to come.<sup>10</sup>

Another recent shortage agreement was negotiated at a much larger scale on the Lower Colorado River. Arizona, California, and Nevada reached an accord, following a multi-year negotiation to allocate potential shortages that basically reflects the compact entitlements originally agreed to by the three states. Interpreted simply, Nevada takes 4% of any shortage in the lower basin, which, while sounding small, was regarded as problematic by Las Vegas water managers for whom all of Nevada’s Colorado River right comprises 90% of their regional water supply, nearly all of which is municipal. To ease Nevada’s shortages, Arizona agreed to accept \$330 million from Nevada to bank water, in exchange for Arizona absorbing the first 1.25 million acre feet of Nevada’s shortage.<sup>11</sup> Arizona’s water banking arrangements give the state the capacity to manage shortages, at least in the near to mid-term. This kind of trading allowed the states negotiating terms surrounding shortage allocations based on prior appropriation rights to cut a deal acceptable to all.

One alternative to the states’ shortage allocation for the Lower Colorado River Basin that was studied by the federal government would have relied on markets to reduce water use on a voluntary and compensated basis rather than on involuntary and uncompensated shortages. This proposal, a component of a package known as “Conservation Before Shortage,”<sup>12</sup> would compel the federal government to offer to pay willing water users not to use water, with prices set in

5. Jeremy P. Meyer, *Water Lifeline or Dream?*, DENVER POST, June 3, 2007, at C1.

6. Associated Press, *Questions Over Bid to Divert Flaming Gorge Water to Front Range*, ROCKY MT. NEWS, July 20, 2007.

7. Meyer, *supra* note 5.

8. Memorandum from the Metropolitan Water District Board, *Approve Water Supply Allocation Plan* (Feb. 12, 2008).

9. Deborah Schoch, *Drought Plan Opens Rifts Over Fairness*, L.A. TIMES, Jan. 20, 2008.

10. *Id.*

11. Henry Brean, *Colorado River: Transfer of Water Approved*, LAS VEGAS REV.-J., Dec. 4, 2004.

12. For a full description of “Conservation Before Shortage,” see U.S. BUREAU OF RECLAMATION, FINAL ENVIRONMENTAL IMPACT STATEMENT, COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKES POWELL AND MEAD app. K (2007), available at <http://www.usbr.gov/lc/region/programs/strategies/FEIS/AppK.pdf>.

a reverse auction up to a pre-determined volume, instead of declaring shortages.<sup>13</sup> Such a use of the market would leave high-value and uninterrupted water supplies untouched while providing compensation to contractors willing to forbear use. In practice, this would replace conventional rights-based shortage allocation with market-based allocations and could protect municipal water users, those least able to absorb shortages. This proposal was not adopted in the final shortage criteria but suggests how markets might play a helpful role in shortage management in the future.

If our goals are to accommodate growth while leaving us the western landscape that we desire, and without further exacerbating economic inequities between communities, then we need to pay close attention to who is at the table when decisions are made about water supplies. In our experience, it is not practical to expect the public at large to weigh in on the details of water deals that are complex and take years (even decades) to complete. But a few trends may help to improve new water deals.

*New school water managers:* “Old school” water management appears to have required an engineering degree and an old-boy network, not to mention a certain race and gender. Today’s water managers are breaking that mold, and diversity at water management agencies throughout the urban West looks to be on the rise. Water management agen-

cies should make increased efforts to employ people who reflect the gender, racial, and political diversity of the communities they serve, and who are credentialed in the full range of issues at stake when water supply decisions are made, including economics, ecology, engineering, and law. The more diverse the workforce that makes water supply decisions, the more likely they are to reflect, and to invite representation to the table, the full range of values we seek to protect and create.

*Transparent decisionmaking:* Water supply decisions made in back rooms to the exclusion of certain parties are likely not to accommodate the needs of those parties excluded. Ideally water supply decisions are made with the participation of all stakeholders throughout the decision-making process. At the very least, water supply decisions should be part of the public record, with timely access to information for all.

*An educated public:* Even if it is unreasonable to expect public attention to focus on the minutia of water supply development and management, we should be making every effort to cultivate a public that is informed about the trade offs at stake. Too many urbanites throughout the arid West have no idea about the true costs of their 18 holes and daily dips in the pool. It is hard for water managers to defend decisions that might seem unnecessarily costly if their constituents do not understand the value of what they are paying for. The news media has certainly increased reporting on water supply management, but all of us in the water business ought to be making a priority of reaching out to the millions who live in the West.

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13. In the proposal, the federal authority to pay for forbearance stemmed from the federal obligation to replace the bypass flow under the Colorado River Basin Salinity Control Act. The Bureau of Reclamation initiated a forbearance program on the Lower Colorado River in 2006.

## RESPONSE

### Comment on *Western Growth and Sustainable Water Use: If There Are No “Natural Limits,” Should We Worry About Water Supplies?*

by Benjamin H. Grumbles

#### I. Introduction

Too often Americans take for granted a system that provides clean, safe, and inexpensive water: from the drinking water that comes out of our taps, to the water that helps us flush our toilets, to our local watersheds where we live, work, and play. Americans also tend to forget the connection between land use and water, particularly when growth drives the agenda. But what happens when the well runs dry? People suddenly will pay greater attention to their usage and will think about reductions, restrictions, and bans.

Dan Tarlock and Sarah Bates examine the question of what limits on sustainable growth are posed by the climate and landscapes of the American West in their article, *Western Growth and Sustainable Water Use: If There Are No “Natural Limits,” Should We Worry About Water Supplies?*<sup>1</sup> The authors articulate the struggles that water managers will face to meet increasing demands. How can we handle the current growth? Many agencies have changed their focus, and we all need to change how we view, value, and manage water.

#### II. The True Value and Full Cost of Water

For generations, Americans have enjoyed the benefit of a system that provides clean and inexpensive water. The public at large has long taken it for granted, and as a result, the value of water and our water infrastructure has diminished. For its part, the U.S. Environmental Protection Agency (EPA) is increasing the public awareness of the value of water to help people realize that investments in water infrastructure are investments in their communities, and that customer rates must reflect that value.

Promoting full-cost pricing has been a major EPA priority for the last several years. When measured as a percentage of household income, the United States pays less for water bills than other developed countries. The public believes water is readily available and cheap. There is a need to fundamentally shift thinking in this area to meet essential infrastructure needs. Pricing water in a way that recovers the costs of building, operating, and maintaining a system is essential to achieving sustainability. Drinking water and wastewater utilities must be able to price water to reflect the full costs of treatment and delivery.

A century ago, the average American used only about 10 gallons of water per day (gpd). Today, Americans use 100 gpd.<sup>2</sup> Ultimately, prices signal value to consumers, and it is

important for prices to reflect the increasing scarcity of water. Part of this value includes the increasing financial obligation needed to maintain our water infrastructure.

#### III. Reducing Water Waste and Inefficiency

EPA believes the Three Rs—Reducing, Reusing, and Restoring—are the key to water sustainability. Reducing waste is not just about pollution prevention; it is also about cutting water waste and inefficiency. Improving water efficiency is an effective way for communities to manage their supplies. With less water moving through the system, utility operating costs will decrease because of reductions in costs for treatment chemicals, residuals disposal, and energy associated with water collection, treatment, and distribution. Fostering a national ethic of water efficiency is important, particularly in the arid Southwest so that water is valued as a limited resource that should be used wisely.

In June 2006, in San Antonio, Texas, EPA announced WaterSense, a new national program to help people make smart water choices that save money and maintain high environmental standards. The WaterSense program reduces water use by creating an easy-to-identify label for water-efficient products. WaterSense products use 20% less water and perform as well as—or better than—conventional models. To earn the WaterSense label, products must be independently tested and certified to meet EPA’s criteria for efficiency and performance.

Public awareness of the WaterSense label is growing every day. More than 125 models of high-efficiency toilets and 30 bathroom faucets and faucet accessories have earned the label, and almost 600 manufacturers, retailers, utilities, and professionals have joined the program as partners. EPA is working with its partners and the media to educate consumers on the benefits of switching to water-efficient products.

For example, toilets account for about 30% of the water used in the home. By replacing an older toilet with a WaterSense model, a family of four could reduce total water use by about 16%. If every home replaced one old toilet with a WaterSense High-Efficiency Toilet, the water savings would be enough to supply nearly 10 million U.S. households with water for a year.<sup>3</sup> These benefits could materialize in Santa Fe, New Mexico, mentioned by Tarlock and Bates as a city that in 2003 began requiring all new city projects to offset a project’s water budget by retrofitting existing toilets with high-efficiency models.

Benjamin H. Grumbles is Assistant Administrator for Water in the U.S. Environmental Protection Agency.

1. A. Dan Tarlock & Sarah Bates, *Western Growth and Sustainable Water Use: If There Are No “Natural Limits,” Should We Worry About Water Supplies?*, 38 ELR (ENVTL. L. & POL’Y ANN. REV.) 10582 (Aug. 2008) (a longer version of this article was originally published at 27 PUB. LAND & RESOURCES L. REV. 33 (2006)).
2. See WAYNE B. SOLLEY ET AL., U.S. GEOLOGICAL SURVEY CIRCULAR 1200, ESTIMATED USE OF WATER IN THE UNITED STATES

IN 1995, at 24 (1998), available at <http://water.usgs.gov/watuse/pdf1995/pdf/circular1200.pdf>.

3. See Benjamin Grumbles, Ass’t Administrator for Water, U.S. EPA, *Growing With the Flow: Water and Sustainable Development*, Speech before the Texas Water Development Board Water Summit 4 (Dec. 3, 2007), available at <http://www.epa.gov/ow/speeches/2007-12-03bg.pdf>; see also Testimony of Benjamin Grumbles, Ass’t Administrator for Water, U.S. EPA, before the Subcomm. on Water Resources and Env’t of the H. Comm. on Transportation and Infrastructure 3 (Nov. 8, 2007).

And while the WaterSense program focuses on more efficient water use by end users, EPA also is working to identify effective leak detection strategies that public water systems can use to minimize leakage in the distribution systems. Water efficiency strategies incorporating water-saving technology can be implemented and still deliver an unchanged or improved level of service to consumers. Acceptable industry standards for water loss are on the order of 15 to 20%. However, in many utilities, water loss through deteriorated distribution pipes can exceed 60%.

#### IV. Reusing Water

Continued growth and demand for water will likely lead to an increased dependency upon water reuse. Areas with limited water resources such as the arid Southwest already have well-established water reclamation and reuse programs. The authors mention Arizona's move from a reliance on groundwater to obtaining supplies from the Central Arizona Project and recycled water. There are also California's Title 22 standards, which have stood the test of time and serve as the basis for a number of the state's other requirements. Under the requirements set by Title 22, over 525,000 acre-feet per year (nearly 470 million gpd) of water were recycled annually in California in 2003, with nearly 46% of recycled water used for agricultural irrigation.<sup>4</sup> The current goal set by state legislation is for this amount to increase to 1 million acre-feet per year (over 890 million gpd) by the year 2010.<sup>5</sup>

The popularity of reuse has grown in other areas such as Florida, which now has over 1.2 billion gpd of total reuse capacity and over 630 million gpd of reclaimed water actually being reused, with 50% of that used for landscape irrigation in public access areas, such as residences, golf courses, parks, and school grounds. The WaterReuse Association estimated the amount of water reused in the United States in 2004 to be about 2.6 billion gpd and projected this amount will increase to about 12 billion gpd by 2015.<sup>6</sup> As demands on existing water supplies increase, more communities will become interested in making greater reuse of reclaimed water.

#### V. Restoring Watersheds

In some respects, the third "R," restoring watersheds, is the most important because it centers on upstream pollution prevention. Aquatic ecosystem restoration was also a central recommendation by the 1998 Western Water Policy Review Advisory Commission.<sup>7</sup> The authors note the increased involvement of local authorities in decisions that were once made mostly at the federal level.<sup>8</sup> Along those

lines, EPA is integrating watershed-based approaches into decisionmaking at the local level so communities can make the most informed and cost-effective infrastructure decisions to help ensure the overall health of the watershed. Watershed-based approaches, such as source water protection, water quality trading, and watershed permitting, help reduce overall infrastructure costs and connect the many different actions within a watershed or sewershed: whether above-ground or underground, upstream or downstream.

EPA is also putting technology and innovation to work in a stormwater permitting program. The vision is to work with communities, companies, and citizens to view stormwater as a water resource, not simply a waste product. Beneficial reuse of stormwater, whether on a watershed scale or through individual rain gardens and rain barrels, helps conserve our water resources.

#### VI. Smart Growth and Green Infrastructure Strategies

Tarlock and Bates discuss smart growth management techniques, albeit not in the most flattering light. Growth and development clearly have important linkages to water resources, and development may actually be more advantageous than the authors give it credit. Depending on where it occurs and how it is designed, development can either result in more runoff and increased pollution to our rivers, lakes, and estuaries or it can be protective of these resources. Development can either destroy sources of clean drinking water or preserve them, and it can either create the need for expensive new water infrastructure, or use existing capacity and generate reinvestment in aging infrastructure.

If implemented properly, smart growth techniques—using land more efficiently, reinvesting in existing communities, and cutting-edge site design—make it easier to maintain healthy water quality. For example, every acre of redeveloped brownfields translates to the perseveration of nearly five acres of green fields. Smart growth plans that leave natural ground covering intact can achieve similar results; a natural meadow absorbs 16 times the amount of stormwater that would run off of a same-size parking lot. Taking advantage of these opportunities is crucial, as runoff from developed areas is a leading source of impaired water quality in our streams, lakes, and estuaries.

This is one reason EPA released a comprehensive plan in January 2008, to reduce stormwater runoff and sewer overflows. The Green Infrastructure Strategy<sup>9</sup> promotes approaches, such as green roofs, trees and tree boxes, rain gardens, and porous pavements, and it explains how states, municipalities, permitting authorities, and nongovernmental organizations (NGOs) can use these and other low impact development (LID) practices to meet water quality goals while sustaining their infrastructure. EPA also published a report in December 2007, titled *Reducing Stormwater Costs Through Low Impact Development (LID) Strategies and Practices*.<sup>10</sup> The report contains 17 case studies showing the economic viability of LID practices. Some common LID

4. Cal. Dep't of Water Resources, Water Recycling, WATER FACTS, Oct. 2004, at 1, available at <http://www.owue.water.ca.gov/recycle/docs/WaterFact23.pdf>.

5. *Id.* at 2.

6. See Testimony of Richard Atwater, CEO, Inland Empire Utilities Ass'n, before the Subcomm. on Water and Power of the H. Comm. on Resources 7 (Sept. 9, 2004), available at <http://www.watereuse.org/pdf/testimony090904.pdf> (Atwater testified on behalf of the WaterReuse Association); see also Wade Miller, Dir., WaterReuse, Keynote Address at Arizona WaterReuse 2007: National Perspective on Water Reuse (July 30, 2007).

7. WESTERN WATER POLICY REVIEW ADVISORY COMM'N, WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY xiv (1998).

8. *Id.* ch. 2, at 38-40.

9. U.S. EPA, MANAGING WET WEATHER WITH GREEN INFRASTRUCTURE: ACTION STRATEGY 2008 (2008), available at [http://www.epa.gov/npdes/pubs/gi\\_action\\_strategy.pdf](http://www.epa.gov/npdes/pubs/gi_action_strategy.pdf).

10. U.S. EPA, REDUCING STORMWATER COSTS THROUGH LOW IMPACT DEVELOPMENT (LID) STRATEGIES AND PRACTICES (2007) (EPA 841-F-07-006), available at <http://www.epa.gov/owow/nps/lid/costs07/documents/reducingstormwatercosts.pdf>.

practices include rain gardens, grassed swales, cisterns, rain barrels, permeable pavements, and green roofs.

## VII. Climate Change

In many ways, water is at the center of the climate change debate. Climate change may have impacts on water infrastructure and watersheds that will affect our actions under the Clean Water Act (CWA), Safe Drinking Water Act, and various ocean and coastal laws.

Tarlock and Bates mention climate change as an additional force to be reckoned with, particularly in the West. Innovative solutions will be critical to meeting this challenge, including technologies and practices to mitigate greenhouse gas (GHG) emissions. For example, EPA is investigating carbon capture and storage (CCS), a process that involves capturing carbon dioxide from power plants and other industrial sources and injecting it into deep, subsurface geologic formations for long-term storage. CCS is one of several innovative technologies that could significantly reduce GHG emissions to the atmosphere.

Additional research and adaptation of all levels of authorities are the other major components of a climate change strategy. How will state, tribal, and local agencies adjust their programs and policies to respond to changes in temperature, precipitation, and storm intensity? How will CWA permits and standards change for arid areas? What research and modeling will allow communities to move toward

drought-proof and climate-ready status? Federal agencies must continue to work closely with the Western Governors Association and other partners to advance sustainable water management and land use.

## VIII. Conclusion

The Three-R focus—reducing water waste and inefficiency, reusing water, and restoring watersheds, is an integral component in planning for development and growth throughout the West. The article emphasizes the need for collaboration across all levels of government, and EPA will continue working collaboratively across all levels of government: NGOs, associations, and the private sector. Working with local public officials and utility managers to identify strategies for reducing water loss from systems is another way EPA intends to confront the issue of growing western communities facing scarce water supplies.

Tarlock and Bates describe similar actions and the need for connecting land use with water sustainability throughout the West. Whether or not this linkage is ultimately achieved, communities should strive to “grow with the flow” and not simply go with the flow in a haphazard manner. While growth caps, bans, and service denials are on the rise, the real wave of the future is proactive smart growth policies that embrace water efficiency and confront the uncertainties and realities of climate change.

## RESPONSE

### Connecting Population Growth and Water Supply: Strangers No Longer

by David J. Hayes

**D**an Tarlock and Sarah Bates provide an excellent reprise of the West's historical resistance to the notion that water scarcity in the region should in any way inhibit growth. In *Western Growth and Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies? (No Natural Limits)*,<sup>1</sup> they provide a powerful brief for the increased importance of linking population growth and water availability, noting recent attempts by some jurisdictions to move in that direction. But their article ends on a rather defeatist note as it concludes that "water availability will never be used as a tool to choke off growth,"<sup>2</sup> leading the authors to advocate the more modest hope that "cities facing water supply constraints may begin to alter their course and seek a more sustainable way to live in and with this landscape."<sup>3</sup>

I am not as pessimistic as the authors. There are powerful new forces at work that are now bringing a new realism into the water-versus-growth debate in the West. Two forces, in particular, deserve special attention: (1) institutional changes in water management in the West; and (2) climate change. These two factors are fundamentally altering the traditionally limited connection between population growth and water supply. Indeed, while I agree with the authors' observations about the West's historical antipathy toward water-related constraints on growth, when it comes to this issue, the past does not predict the future. Over the next several years, many communities in the West will, for the first time, be forced into a candid dialogue about water constraints and its impact on their cities, towns, and rural communities. And they will no longer have the option of turning to traditional water barons for a bailout. This time, the hard questions will end up squarely on their laps.

#### I. Institutional Changes

As Tarlock and Bates point out, the federal government has traditionally played an outsized role in water management via its major investments in water storage (think dams), water transport, e.g., the Central Arizona Project and California's Central Valley Project, and related irrigation projects that dot the West. State and urban water power brokers also have been major players, often working in tandem with the federal government. Larger than life characters like William Mulholland in California, Carl Hayden in Arizona, and Floyd Dominy for the Bureau of Reclamation made the big moves in western water that remain with us today.

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David J. Hayes is former Deputy Secretary of the Interior and is currently Global Chair of the Environment in the Land and Resources Department at Latham & Watkins.

1. A. Dan Tarlock & Sarah Bates, *Western Growth and Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies?*, 38 ELR (ENVTL. L. & POL'Y ANN. REV.) 10582 (Aug. 2008) (a longer version of this article was originally published at 27 PUB. LAND & RESOURCES L. REV. 33 (2006)).
2. Tarlock & Bates, *supra* note 1, at 10589.
3. *Id.*

As noted in *No Natural Limits*, the institutional role of the federal government has greatly diminished in recent years. The federal government has little money and even less political will. Its limited funds are devoted to maintaining existing projects; virtually no new money exists for additional water projects. Also greatly diminished is the ability of state and city water barons to pull off huge water deals with behind-the-scenes wheeling and dealing. While it remains true that some urban water purveyors and rural irrigation districts still have remarkable power because their large customer bases give them prodigious money-raising capabilities, e.g., the Metropolitan Water District of Southern California, or because they are sitting on a large hoard of water rights, e.g., the Imperial Irrigation District, western "water buffalos" no longer dominate the water world like they used to.

New players have been filling the void, disaggregating the power of many of the former water kings and greatly complicating the traditional efforts to simply fix water scarcity problems through huge investments in new infrastructure. Commercial and sport fishermen are a powerful new constituency that favors keeping water in streams, rivers, and lakes. Many other business interests also recognize the often-substantial amenity value associated with natural water bodies. And watershed protection groups, often in concert with environmental activists, are new voices that have entered the debate. In many cases, these new players are doing more than stopping destructive water projects. They are advocating major restoration projects that will take down dams on the Klamath River in Oregon and will return formerly diverted water supplies to the dry riverbeds of the San Joaquin River and Owens Valley in California.

The devolution and disaggregation of institutional control over water matters has three important implications that will force the first serious linkage between issues of water supply and growth. First, it has leveled the playing field and dispersed the ability of any one interest group (formerly, the water barons) to "solve" a water supply problem. The "don't-worry-about-growth-because-there's-always-more-water" crowd is being called to account.

Second, as a corollary point, more parties now have blocking power to force a public discussion about water options through litigation, debates over public financing, or the voter referendum process. The generally soft legal obligations to consider the growth and water supply connection that are now popping up in the West suddenly have become more than forgotten words in the statute books. In California, advocates are using these new laws, in combination with strong disclosure requirements under the California Environmental Quality Act, to draw attention to the lack of water-related planning behind many large developments. Bolstered by the added dimension of climate change (which is discussed further below), legal challenges to the adequacy of the major new developments are proliferating.

Third, the devolution of water-related decisions from the federal level down to state and local decisionmakers collapses the traditional gap between the officials who worried about water supply and those who addressed growth issues. For better or for worse (and it's mostly better), local officials who have always had to deal with the usual infrastructure headaches associated with growth (roads, schools, etc.) now need to add water supply into the mix. They can no longer simply pass the buck to some higher, more-moned power.

## II. Climate Change: The New Game-Changer

The second major new factor forcing a more direct linkage between water availability and growth patterns is climate change. Tarlock and Bates acknowledge climate change as a "new reality" that "further complicate[s] the West's variable supplies by increasing the inherent risks in water rights and hydrologic forecasts."<sup>4</sup> While true, this comment understates the role climate change will have in forcing a marriage between water supply issues and growth considerations.

Climate change is the game-changer for two reasons that go beyond the actual (and very serious) impacts that climate change will have on the quantity, timing, and form, i.e., slow-melting snow versus fast-dispersing rain, of water availability in the West.

First, there is a new and extraordinary level of public interest in—and deep concern about—climate change. For example, a November 2005, poll conducted by Fox News concluded that 77% of Americans believe global warming is happening with 60% describing global warming as either a "crisis" or "a major problem."<sup>5</sup> More recently, a March 26, 2007, Stanford University poll found

88% of those surveyed think that global warming threatens future generations.<sup>6</sup>

The increased public consciousness regarding climate change is prompting local leaders and ordinary citizens alike to take a harder, and more serious, look at concerns that many scientists are expressing regarding the impact of climate change on water supplies. Because of their climate change angle, a large new audience is now attentive to water supply issues.

Secondly, climate change concerns impact assumptions about water availability and raise concerns about the existing water supply systems' ability to continue to service the status quo—much less accommodate additional growth. The stakes quickly get considerably higher when serious questions are raised about the viability of the existing water supply systems to continue serving traditional and ongoing water needs. Yet that is exactly what is occurring throughout the Colorado River Basin, in many parts of California, and elsewhere in the West.

When current and long-standing water uses are put at risk, a powerful new constituency quickly forms to make certain that unrestrained growth does not jeopardize the status quo more than it already is being threatened by climate change. Water providers of all sizes are tightening up their systems and bracing for the new constraints that climate change is bringing their way. These providers will soon have no choice but to raise the warning flag. Forced with the choice between reliably serving their traditional customer base and expanding service to new customers, suppliers, along with their customers, they will have no choice but to question the viability of huge new demands on their systems.

In sum, important new forces in the West are affecting the traditional disconnect between water supply and growth. These two strangers are becoming acquainted with each other. Let's hope that they get along. Divorce is not an option.

4. *Id.* at 10583.

5. Dana Blanton, *11/09/05 FOX News Poll: Global Warming*, FoxNews.com, Nov. 10, 2005, <http://www.foxnews.com/story/0,2933,175070,00.html> (last visited June 11, 2008).

6. Juliet Eilperin & Jon Cohen, *Growing Number of Americans See Warming as Leading Threat*, WASH. POST, Apr. 20, 2007, at A20, available at <http://www.washingtonpost.com/wp-dyn/content/article/2007/04/19/AR2007041902527.html>.